International Scientific Conference

ABSTRACT BOOK

7-10 July 2015 • Paris, France

This Abstract book is based on a compilation of all abstracts selected for oral and poster presentations, as of 15 May 2015.

Due to the inability of some authors to attend, some of those works will therefore not be presented during the conference.

OUR UNDER
COMMON CLIMATE
FUTURE CHANGE

Welcome to the Conference

Welcome to Paris, welcome to 'Our Common Future under Climate Change'!

On behalf of the High Level Board, the Organizing Committee and the Scientific Committee, it is our pleasure to welcome you to Paris to the largest forum for the scientific community to come together ahead of COP21, hosted by France in December 2015 ("Paris Climat 2015").

Building on the results of the IPCC 5th Assessment Report (AR5), this four-day conference will address key issues concerning climate change in the broader context of global change. It will offer an opportunity to discuss solutions for both mitigation and adaptation issues. The Conference also aims to contribute to a science-society dialogue, notably thanks to specific sessions with stakeholders during the event and through nearly 80 accredited side events taking place all around the world from June 1st to July 15th.

When putting together this event over the past months, we were greatly encouraged by the huge interest from the global scientific community, with more than 400 parallel sessions and 2200 abstracts submitted, eventually leading to the organization of 140 parallel sessions.

Strong support was also received from many public French, European and international institutions and organizations, allowing us to invite many keynote speakers and fund the participation of more than 120 young researchers from developing countries. Let us warmly thank all those who made this possible.

The International Scientific Committee deserves warm thanks for designing plenary and large parallel sessions as well as supervising the call for contributions and the call for sessions, as well as the merging process of more than 400 parallel sessions into 140 parallel sessions. The Organizing Committee did its best to ensure that the overall organization for the conference was relevant to the objectives and scope. The High Level Board raised the funds, engaged the scientific community to contribute and accredited side events. The Conference Secretariat worked hard to make this event happening. The Communication Advisory Board was instrumental in launching and framing our communication activities on different media. We are very grateful to all.

We very much hope that you will enjoy your stay in Paris and benefit from exciting scientific

interactions, contributing to the future scientific agenda. We also hope that the conference will facilitate, encourage and develop connections between scientists and stakeholders, allowing to draw new avenues in the research agenda engaging the scientific community to elaborate, asses and monitor solutions to tackle climate change together with other major global challenges, including sustainable development goals.

Christopher Field, *Chair, CFCC15 Scientific Committee*
Jean Jouzel, *Chair, CFCC15 High Level Board*
Hervé Le Treut, *Chair, CFCC15 Organizational Committee*

Committees

Scientific committee

- Chris FIELD *(IPCC, USA) - Chair*
- Philippe CIAIS *(LSCE, France)*
- Wolfgang CRAMER *(IMBE, France)*
- Purnamita DASGUPTA *(IEG, India)*
- Ruth DEFRIES *(Colombia University, USA)*
- Navroz DUBASH *(CPR, India)*
- Ottmar EDENHOFER *(PIK, Germany / IPCC, USA)*
- Michael GRUBB *(University College London, UK)*
- Jean–Charles HOURCADE *(CNRS- France)*
- Sheila JASANOFF *(Harvard Kenny School of Government, USA)*
- Kejun JIANG *(Nanyang Technological Univerisity, China)*
- Vladimir KATTSO *(MGO, Russia)*
- Hervé LE TREUT, France *(CNRS-UPMC/France)*
- Emilio LEBRE LA ROVERE *(National University, Brazil)*
- Valérie MASSON–DELMOTTE *(LSCE/IPSL, France)*
- Cheik MBOW *(ICRAF, Kenya)*
- Isabelle NIANG–DIOP *(IRD, Senegal)*
- Carlos NOBRE *(SEPED/MCTI, Brazil)*
- Karen O'BRIEN *(Universty of Oslo, Norway)*
- Joe JACQUELINE PEREIRA *(University Kebangsaan, Malaysia)*
- Shilong PIAO *(Peking University, China)*
- Hans OTTO PÖRTNER *(Alfred Wegener Institute, Germany)*
- Monika RHEIN *(University of Bremen, Germany)*
- Johan ROCKSTRÖM *(Stockhom University, Sweden)*
- Hans Joachim SCHELLNHUBER *(PIK, Germany)*
- Robert SCHOLES *(University of Witwatersrand, South Africa)*
- Pete SMITH (University of Aberdeen, UK)
- Youba SOKONA *(The South Centre, Switzerland)*
- Jean–François SOUSSANA *(INRA, France)*
- Mark STAFFORD–SMITH *(Future Earth, Australia)*
- Thomas STOCKER *(University of Bern, Switzerland)*
- Laurence TUBIANA *(IDDRI, France)*
- Diana ÜRGE–VORSATZ *(Central European University, Hungary)*
- Penny URQUHART *(Independent analyst, South Africa)*
- Carolina VERA *(University of Buenos Aires, Argentina)*
- Alistair WOODWARD *(University of Aukland, New Zealand)*

Organizing committee

Chair:

- Hervé Le Treut *(CNRS-UPMC)*

Members:

- Wolfgang Cramer *(CNRS/Future Earth)*
- Pascale Delecluse *(CNRS)*
- Robert Kandel *(CNRS/Ecole polytechnique)*
- Frank Lecocq *(AgroParis Tech/CIRED)*
- Lucilla Spini *(ICSU)*
- Jean-François Soussana *(INRA)*
- Marie-Ange Theobald *(UNESCO)*
- Stéphanie Thiébault *(CNRS)*
- Sébastien Treyer *(IDDRI)*

Conference Secretariat:

- Claire Weill, Head *(INRA)*
- Géraldine Chouteau *(Météo-France)*
- Aglaé Jézéquel *(INRA)*
- Gaëlle Jotham *(INRA)*
- Ingrid Le Ru *(IDDRI)*
- Benoît Martimort-Asso *(IRD)*
- Nadia Mersali *(IDDRI)*
- Catherine Michaut *(CNRS-UVSQ/IPSL)*
- Aline Nehmé *(INRA)*
- Jeremy Zuber *(INRA)*
- Aimie Eliot *(INRA)*
- Eve Le Dem *(INRA)*

Communication Advisory Board:

- Richard Black, *Energy and Climate Intelligence Unit*
- Hunter Cutting, *Climate Nexus*
- Owen Gaffney, *Future Earth/Stockholm Resilience Centre*
- Kalee Kreider, *United Nations Foundation*
- Michelle Kovacevic, *Communications consultant*
- Jonathan Lynn, *IPCC*
- Kim Nicholas, *Lund University*
- Tim Nuthall, *European Climate Foundation*
- Nicholas Nuttall, *UNFCC*
- Roz Pidcock, *Carbon Brief*
- Charlotte Smith, *Communications INC*
- Sue Williams, *UNESCO*
- Denise Young, *ICSU*
- Jeremy Zuber *(INRA)*

temperature and precipitation anomalies.

During the corresponding summer seasons, the diagnostics show that precipitation patterns are more directly connected to the convection anomalies rather than the circulation anomalies. The Americas see enhanced precipitation in the monsoon regions when the large scale upper tropospheric divergence associated with the MJO convection passes over the western hemisphere. Similarly, suppressed precipitation in these regions is observed when the large scale upper tropospheric convergence passes over the continents.

P-1117-05

Climate Change Studies over Western-ghat Region using Remote Sensing & GIS Modelling

N. Bhat (1) ; KC. Gouda (2)
(1) Shri Madhwa Vadiraja Institute of Technology and Management, computer sc & engg, Udupi, Karnataka, France; (2) CSIR CMMACS, CEMP, BANGALORE KARNATAKA, India

Western ghat region is one of the major mountain system in the Indian sdunbcontinent, extending in the western part of Indian from Kerala in South till Maharastra in north and the total area is about 160,000 Sq. km. The western ghat is of important from different point of view starting from the flora and fauna to medicin al plant to the rich region of river systems and the orography is most important for its role in the Rainfall during Monsoon and other seasons. In the study the remote sensing data from different soiurces like MODIS, TRMM, IRS and the multi-source observations from reanalysis products like NCEP, ERA-40, JMA and the high resolution observations like IMD are being used to study the climate change and quantified in terms of the different climate parameters mainly temperature, rainfall, humidity etc. The IRS and Landsat data are being analtysed in the GIS Modelling frame work to see the signature in the Land Use and Land Cover Change detaection at high resolution over the mountain region. Finally the spatio-temporal analysis of the climate change are presented. Various algorithm and visualisation to understand the climate change over the mountain region are developed and presented in a very user friendly way which can be easily used by the users of different sectors for the better understanding of the climate change.

P-1117-06

Temperature impact on Non-Communicatble Diseases in Africa – a Blind Spot in Research

A. Bunker (1) ; E. Diboulo, (2) ; A. Sié, (3) ; R. Sauerborn (4)
(1) University of Heidelberg, Network Ageing Research and Institute of Public Health, Heidelberg, Germany; (2) Swiss Tropical and Public Health Institute, Epidemiology and Biostatistics, Basel, Switzerland; (3) Centre de Recherche en Santé de Nouna, Nouna, Burkina Faso; (4) Heidelberg University, Institute of public health, Heidelberg, Germany

The mean temperature in northwest rural Burkina Faso, in the Nouna Health and Demographic Surveillance System (HDSS) region, is projected to increase under different climate change scenarios by the end of the 21st Century[1]. The Nouna HDSS consists of approximately 100,000 people, and is one of several International Network for the Demographic Evaluation of Populations and Their Health (INDEPTH) sites that collect health and demographic data across populations in low-and-middle income countries. As life expectancy increases in Burkina Faso and people live for longer with chronic and degenerative diseases, non-communicable disease will play a greater role in contributing to the burden of disease. This study assesses the impact of 18 years of temperature exposure on non-communicable disease years of life lost, an indicator of premature mortality, in the Nouna HDSS population.

Preliminary analysis used all-cause mortality data from the Nouna HDSS, to conduct a survival analysis and calculate the outcome variable, years of life lost, for 12,769 deaths between 1993-2000. A time-series regression analysis using the generalized additive model, adjusted for time-trends and seasonality was used to study the impact of mean temperature on all-cause mortality. Results indicate that a 1°C increase in temperature was associated with a 1.024 relative risk increase (p value=0.029) in all-cause mortality per 1°C increase in mean temperature above 30°C (1 day lag). We will present an extended 18-year cause-specific time-series analysis on the impact of mean, maximum and minimum temperature on non-communicable disease years of life lost, including the lagged effects.

As life expectancy at the Nouna HDSS increases, the burden on non-communicable disease is likely to increase with higher temperatures. Targeted preventive measures are required to alleviate this burden.

[1] David M Hondula, Joacim Rocklöv, and Osman A Sankoh, "Past, Present, and Future Climate at Select INDEPTH Member Health and Demographic Surveillance Systems in Africa and Asia," Global Health Action 5, no. 0 (November 23, 2012), doi:10.3402/gha.v5i0.19083.

P-1117-07

Farmers' perceptions of climatic trend in Allada plateau in southern Benin

A. Cayossi Ulrich (1) ; A. Abel (2) ; G. Hervé, (3) ; EK. Agbossou (4) ; V. Pierre, (1) ; C. Baron (3)
(1) université d'Abomey-Calavi, COTONOU, Benin; (2) Universite d'Abomey-Calavi, Graduate research program on climate change and water resources, Abomey-Calavi, Benin; (3) CIRAD, Montpellier, France; (4) UNIVERSITY OF ABOMEY-CALAVI, Faculty of agronomic sciences, Abomey-Calavi, Benin

Although several studies show an increase in agricultural production in West Africa in connection with the improvement in rainfall, farmers perceive otherwise. This study highlights the differences between farmers' perceptions of changes in precipitation and their impacts on agricultural production and scientific observations in the Guinea region where two rainy seasons coexist. For this purpose, it compared precipitation data (from 1951 to 2010) and potential yields of corn (from 1970 to 2010), simulated by SARRA-H model, to farmers' perceptions of changes in precipitation collected from 201 farm managers spread over 67 villages in Southern Benin. The study clearly shows that farmers do not make any distinctions between the long rainy season and short rainy season in terms of changes in rainfall and agronomic impacts. On the contrary, climate analysis results, and agronomic simulations reveal that the long rainy season and short one are not affected in the same way by atmospheric forcing. Consequently, these two rainy seasons have opposite agronomic trends. Since 1970, the long rainy season has a rainfall deficit coupled with a poor temporal distribution of rainfall and a shortening in its duration which led to a sharp drop in potential crop yields. Conversely, since the late 1980s, the short rainy season rainfall recorded a surge which causes a sharp increase in agricultural yields. This pessimistic perceptions of farmers on the evolution of rainfall in both rainy seasons influences their choice of management of the farming calendar of the short rainy season, worsening food insecurity in the study area.

P-1117-08

On the characteristics of climate change in Scandinavia and its association with the Northern Atlantic Oscillation (NAO) and sea ice

Y. Chen (1) ; S. Stefan (1)
(1) Uni Research Climate, Bjerknes Centre for Climate Research, Climate Data Service, Bergen, Norway

We analyzed some characteristics of climate change over Scandinavia using CRU data (1901- 2012), and both temperature and precipitation exhibit well-documented positive trends. However, the spatial variability of the trends is large with some areas showing high significance (northern Norway and Sweden) and others none at all (central Finland). The scenarios simulated by NorESM and ECHAM6 models exhibit continued warming and increased rainfall in the 21st century over Scandinavia. Given the